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Protect

Winter 2006

Magazine of the New Zealand Biosecurity Institute

Contents

Editor's Note

The position of Editor at *Protect* remains unfilled. Please contact Carolyn on cl.sb@xtra.co.nz if you would like to take up this role within the Institute.

New Zealand **Biosecurity** Institute

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News from the Executive

NETS2006

It's countdown to NETS2006 in sunny Paihia, with last-minute registrations still coming in! Looking forward to seeing you all there.

NETS2007

The organising committee for NETS2007 in Wellington has already been convened and venues narrowed down with a final decision to be made soon. It is great to see that Ali Howard, Nelson Tourism, who was our conference organiser for Nelson and again for Canterbury in 2005, back on board to keep things running smoothly and ensure NETS2007 is another outstanding conference.

MOU with BNZ and NZBI

We had hoped that this would be signed off by the AGM at NETS2006, but the chances are looking slim with final adjustments to wording being made. We will persevere with this until it is satisfactory to both parties.

New members

The NZBI warmly welcomes the following new members:

Ben Winder ..... Greater Wellington Regional Council
Bruce Dippie .....Nelson City Council
Jake Goonan..... Taranaki Regional Council
Lindsay Scott..... Environment Canterbury
Rebecca Stanley..... Auckland Regional Council
David Brittain..... Target Pest
Donna Watchman..... Environment Bay of Plenty
Tiphaine Renard..... Environment Canterbury

Carolyn Lewis

NETS2006 update

We are on the countdown to NETS2006, which will be set in the fantastic Bay of Islands, Northland. This is the heart of the South Pacific, and is renowned for its extensive, diverse and beautiful coastal environment, majestic islands and sub-tropical climate. This makes it best placed to host a conference highlighting not only pressures on biosecurity, but progress in island biosecurity and management (mainland and offshore), border protection systems, marine biosecurity and our Pacific neighbourhood.

We are all set to provide a forum for all involved with biosecuity to meet others in this field, hear and see the latest in new incursions and results, and network for the future. Response to date for registrations has been great. This will be a NETS to remember.

This year we have a number of speakers both from overseas and New Zealand. Speakers from America and Australia will present papers on issues relating to biosecurity in the South Pacific. There will be presentations on where specific issues are at and also success stories.

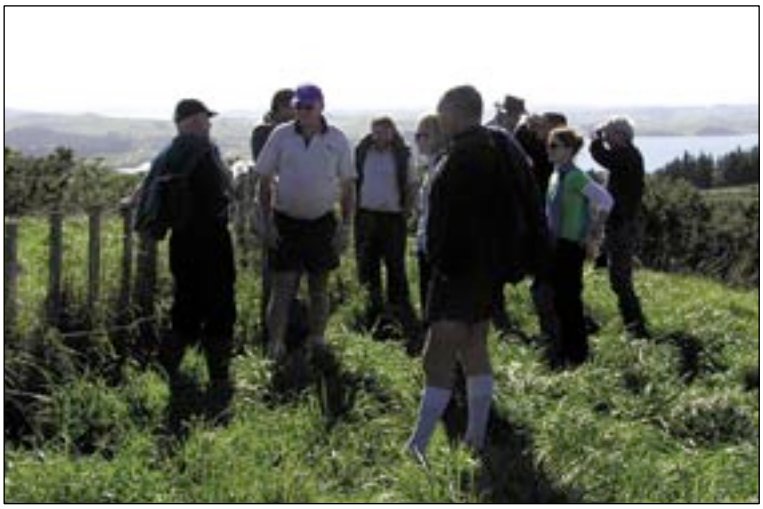
Our overseas speakers include: Daniel Vice, United States Department of Agriculture Wildlife Services, with his paper, Eradication and prevention of reintroduction of non-native rodent and reptiles to Coco's Island, Guam; Pete Holloran, USA, on measuring performance of invasive plant eradication efforts in New Zealand; Darryl McGinn from Mosquito Consulting Services Pty Ltd, Brisbane, Australia, discussing the management of mosquito threats in constructed wetlands; Amy Lovesey, from the Australian Government Department of Agriculture, Fisheries and Forestry, presenting a national system for the prevention of marine pest incursions; and Jane Morton, from the Queensland Herbarium, Brisbane Botanic Gardens, Australia presenting the National Weed Detection Project and how they are progressing in detecting new incursions in Queensland.

To add to the mix there will be hands-on workshops this year, designed to bring examples directly to you of what we may face in the future.

It's going to be a great three days – make sure you don't miss out!

Branch news

Northland/Auckland Branch



Northland/Auckland Branch members take in the sights at the new Atiu Creek Regional Park, situated on the Kaipara Harbour.

The meeting was held at the Wellsford Fire Station and started with our AGM which was followed by our branch meeting. Lisa Maria has stepped into the secretary's role, replacing Tony McCluggage, while Rebecca Kemp continues as chairperson and Greg Hoskins returns as executive member.

After the formalities, Dave Galloway spoke to the group about the new Atiu Creek Regional Park, which was visited after lunch.

Atiu Creek Farm, an 848ha property, was gifted to the Auckland Regional Council and people of the region by its current owners. The property is situated on the Tapora Peninsula, 15km west of Wellsford. The ARC officially took over management on July 1.

Atiu Creek Farm will not only provide greater access to the Kaipara Harbour coastline, but will provide for a number of recreational opportunities such as walking, horse riding and biking, for both the local and regional communities. There is also the prospect of establishing a campground at the park in the future.

The farm has a mix of pasture, pines and native bush, as well as weeds such as woolly nightshade and gorse. There is also an impressive pa site on one of its highest points overlooking the Kaipara Harbour and its surrounds. Pest animals such as pigs, possums, feral cats and mustelids are also present on the property. Possum control using Feratox has recently started with good results. With control of the other pest animals on the property it is hoped the park will eventually provide good habitat for a range of native birds and animals.

Central North Island

Central North Island Branchs members gathered at Te Kauri Lodge near Kawhia Harbour.

The Central North Island Branch combined an AGM and field trip into a two-day stay at Te Kauri Lodge on the way to Kawhia Harbour. Unfortunately there were a few clashes with other major meetings in the Waikato so attendance was lower than usual.

The AGM elected Andy Laurensen as chairperson and Heidi Pene as secretary. They take over from Chris Hale and Esther van den Bosch who have held the positions for some time. Tim Senior remained as executive member.

Those who did come along participated in a Weed Challenge of the Kawhia area where they set off in teams of four people per vehicle following clues and maps to find a variety of invasive species (and a few wild cards!). Teams had to answer key questions about these species to gain points. There was, it must be said, some major competition between teams, which wasn't helped when a passerby decided to remove one of the directional signs on the route, causing some confusion.

The following day, Dave Matthews of DOC, gave a run-down on the history of Te Kauri Lodge from inception to present day, after which we headed into Kawhia for a look at coastal subdivision and weed invasion issues, led by John Dodgson.

Member Profile: Craig Davey

Hello, as a newly elected member of the executive (Executive Member, Lower North Island Branch) you may want to know a little of my background.

Horizons Regional Council has employed me for 3½ years as an Environmental Management Officer – Plants, based in Wanganui. I am responsible for the urban area and the surrounding rural district stretching from the coast up to Pipiriki on the Whanganui River. This area encompasses a diverse range of habitats and associated biosecurity threats. My main concern is old man's beard and the other suite of plants capable of transforming our forest habitats.

Wanganui has a long history of plant importations, being the first place kiwifruit was established in New Zealand. However, along with the successful (although talk to Environment Bay of Plenty on that one) has also been the unfortunate (field horsetail and old man's beard), so there is plenty to keep me busy in and around Wanganui. I have an interest in aquatic pests and the human factors in weed dispersal and it is only through many agencies working cohesively through programmes such as the National Aquatic Pest Awareness Group and Weedbusters will we really see effective behavioural change in New Zealand.

On the job: Craig Davey of Horizons Regional Council.

I was introduced to "weeds" at an early age after gravity dictated the winner between a hill, a gorse bush and me — 30 years on I still carry the scar. So out visiting one Sunday shortly after the above introduction, imagine my consternation when a family friend of advanced years marvelled at the "golden hills" of Lower Hutt: I knew better. However, it did illustrate the point that there are always two sides to every story.

My work history prior to working at Horizons began after I gained a horticulture degree from Massey University in the early 1990s. Initially I spent time at Landcare Research/HortResearch on poplar and willow breeding programmes, which involved possum palatability trials and lots of fieldwork, which was a great way to explore our marvellous country.

I followed this work with a stint working for a vegetable seed production company based in Palmerston North. The company received parent lines of seed from various countries to cross or open pollinate. I managed contract growers' crops from Wanganui to Hawke's Bay as well as having production and research farm management. The seed industry is very exciting, especially dealing with northern hemisphere clients, MAF clearing house, and the extremes of our New Zealand weather. I discovered that climate was the average of extreme events and sadly the company had too many "frosts in January" and wound down. After the hectic seed industry I wanted to work in something a little more constructive (and play with power tools) so I moved to residential building for a few years before hearing the call of the bush and deciding to put my degree to good use.

I live in Wanganui with my wife, Kate, who is a schoolteacher. We have recently entered into parenthood and have a 10-month-old male crawling machine.

Craig Davey
Executive Member, Lower North Island

NZBI Study Award recipient 2006

Stephanie Shaw

Stephanie Shaw, NZBI Study Award recipient,

Nearly one third of all amphibians are threatened with extinction. Chytridiomycosis, a disease caused by the pathogenic fungus *Batrachochytrium dendrobatidis*, has been identified as a causal agent of amphibian declines in Australia, North and South America, and Europe. It has been established that there has been a population crash in *Leiopelma archeyi* (Archey's frog) in part of its Coromandel Peninsula range over the period 1996 to 2001. *B. dendrobatidis* was found in an Archey's frog by histopathology. New Zealand also has well-established populations of the non-native *Littoria* spp. which have been found to carry chytrid. It has been hypothesised that chytrid fungus could be responsible for the decline, and therefore, could be a future threat for the remaining populations of Archey's frog and the three other species of *Leiopelma*. However, there has been insufficient survey work on chytrid to support this hypothesis. In addition, there are other diseases in New Zealand frogs that have been identified, but the incidence and effects are unknown.

My proposed PhD thesis has been formulated from the findings of the DOC Native Frog Disease Workshop and the needs identified by the DOC Recovery Group Meeting. It is intended to combine PhD research with clinical medicine at the Conservation Medicine Centre of the Auckland Zoo. This dual Conservation Medicine PhD/Residency will increase the scope of activity to better fit with job and research opportunities. The Massey (Albany) conservation ecology advisor is Associate Professor Dianne Brunton and the Auckland Zoo conservation medicine advisor is Richard Jakob-Hoff.

Therefore, my research will investigate and address the following areas:

- Epidemiological study comparing populations of a species and/or inter-species of *Leiopelma* determining prevalence and incidence of chytrid infection using Taqman's PCR.
- Determine if native frogs are susceptible (without doing transmission study)
- Use new sick/dead frogs for broader disease investigation.
- Survey all frog specimens in collections (where possible) for chytrid using Taqman real-time PCR from James Cook University.
- Training in amphibian and reptile medicine, including the *Leiopelma* captive breeding and research colony, at the Auckland Zoo Conservation Medicine Centre.
- Training in frog histopathology disease identification at James Cook University and Massey PN branch.

This study is quite relevant to the New Zealand Biosecurity Institute's mission. There is only a very small, inadequate base of knowledege about what diseases are present in our native frogs. It is difficult to assess the threats from non-native frogs without the background disease data. Chytrid fungus is just one example of an invader that has made its way into New Zealand with, as of yet unknown, but potentially devastating effects. The issue of our native frog decline needs public awareness and disease surveillance. By accomplishing the research objectives above, I hope to identify and assess the current disease threats that could come from other borders, and what diseases are already here in our native and non-native frogs.

NZBI Study Award recipient 2006

Adrienne Fortune

I am studying for a Master of Forestry Science at the New Zealand School of Forestry at the University of Canterbury. My thesis is on the pathways and vectors of non-indigenous species to the Ross Sea region of Antarctica.

My interest in the Antarctic was sparked by a paper in my first year at university when I was studying for a Bachelor of Science (Biological Sciences) and a Bachelor of Forestry Science (Hons) at the University of Canterbury. For my B.For.Sci dissertation I examined the use made of biosecurity policies by regional councils throughout New Zealand. The summer after I graduated I enrolled in the Graduate Certificate in Antarctic Studies at the university, which stimulated my interest in biosecurity in the Antarctic and brought together my main research interests.

Proposed study

The study will look at biosecurity in the Ross Sea region of Antarctica. There is significant international logistical collaboration which ensures the success of the science programmes based in Antarctica. New Zealand, Italy and the United States of America are all involved in a logistical pool that provides support and interaction between their Antarctic science programmes and home countries. This includes the sharing of resources such as transport planes and ships, the ice wharf and air landing strips. Both the US Antarctic Programme (USAP) and the Italian Antarctic Science Programme are based at the International Antarctic Centre in Christchurch, New Zealand. Personnel and equipment arrive at the Christchurch base from the United States, Italy and elsewhere for trans-shipment. Large numbers of scientists and staff destined for Antarctica, as well as cargo, pass through New Zealand. This potentially increases the risk of contamination between Antarctic bases, the Christchurch base, and other countries.

My research will investigate the current biosecurity practices in the Antarctica, a unique environment to which New Zealand is one of the main gateways. New Zealand has responsibilities to the region and it is best that the country ensures that biosecurity risks are minimised. However, no research has been conducted to date that has evaluated New Zealand's policies and procedures and the effectiveness of these measures in protecting both New Zealand and the Ross Sea region.

Increasing traffic and more diverse origins of people and equipment arriving in the area make the monitoring and control of potential hazards advisable if the protection of the ecosystems are to be assured. Biosecurity threats in both the marine and the terrestrial environments of the Antarctic will be considered.

Adrienne Fortune, NZBI Study Award recipient.

The study will investigate the vectors and pathways that potentially allow for invasive species to enter the region and/or to move between the New Zealand base on Antarctica and New Zealand. Once potential threats are identified, mechanisms for preventing or controlling entry or transfer will be investigated.

Regulations

Within Antarctica, humans and their activities are governed by a variety of different measures, protocols and legislation. The umbrella under which all human activity and intervention in Antarctica occurs is the Antarctic Treaty System. This system includes the Antarctic Treaty (1959), the Agreed Measures (1964), the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) (1980), and the Protocol on Environmental Protection to the Antarctic Treaty (1991), also known as the Madrid Protocol. Although these treaties provide a framework for protecting the Antarctic environment, none specifically addresses biosecurity issues.

Legal provisions in New Zealand

Antarctica is occasionally mentioned specifically in New Zealand legislation — for example, the New

NZBI Study Award recipient

Adrienne Fortune

Zealand Crimes Act (1961) includes the Antarctica Act (1960). However, Antarctica is not included in the biosecurity provisions of the Biosecurity Strategy (2003). This leaves Antarctica vulnerable to the introduction of pests and diseases through a lack of legislation.

Study's value to NZ's biosecurity interests

New Zealand has a strong biosecurity network, but may be a weak entry point for invasive species to enter Antarctica. The research will assess the threat of incursion from New Zealand to Antarctica and vice versa. As Antarctica is multi-national, with what appears to be minimal biosecurity measures to prevent the spread of species between nations while engaged in Antarctica, it may be an entry point into New Zealand for undesirable species. This research will identify and evaluate potential problems in this area and recommend precautionary measures and/or improvements where necessary.

Study's practical relevance NZBI objectives

No research of this kind has been conducted. This study will provide an opportunity for me, as a student intending to work in the field of biosecurity in New Zealand, to gain invaluable research skills and knowledge in both the New Zealand and international contexts. As biosecurity in Antarctica has not been investigated before, it provides opportunities for others associated with the project, such as supervisors, to contribute their skills and expertise to this investigation. Results from the research will be directly relevant to policy makers and legislators in New Zealand and internationally. It will directly contribute to Antarctica New Zealand's policies and practice. Liaising, consulting and networking with a range of individuals and groups, including Antarctica programmes from other countries, will be necessary, providing opportunities to share knowledge, raise awareness of biosecurity issues and of the NZBI.

I would like to take this opportunity to thank NZBI for helping to fund this study.

Agricultural contractors bail up weeds

Reducing weed spread in Tasmania through accreditation

Cindy Hanson
Department of Primary Industries,
Water and Environment,
Tasmania, Australia.

Agricultural Contractors of Tasmania Inc. (ACTI) is an important, progressive element in the state's rural sector. It has a long, proud history with origins tracing back to the Steam Thresher Men's Association of the 19th century. Today, ACTI represents more than 120 members who engage in a variety of farm work including harvesting, cultivation, sowing, spraying and other more specialised agricultural operations.

In early 2003 the ACTI Executive Committee began to investigate the value and practicality of establishing a weed hygiene accreditation system for its members. The main impetus for this was a growing perception of increasingly stringent demands from the market in terms of product and service quality as these relate to weed contamination and spread.

Tasmanian contractors, through their organisation, Agricultural Contractors of Tasmania Inc., have put in place measures to minimise their role in the spread of weeds in the state.

Weed contamination compromises the value of agricultural products and increases the risk of product rejection. The value of agricultural land may be reduced if weeds are spread from one property to another. In addition, Tasmania's new weed laws mean that any person found to be spreading declared weeds in the course of their activities may be legally required to undertake corrective action or risk a fine or prosecution under the Weed Management Act 1999. Ultimately the viability of any agricultural contracting business is reduced if a reputation for poor weed hygiene is allowed to develop.

The ACTI executive decided that members needed a way of ensuring their role in agricultural production in respect of weed hygiene was carried out to a high standard and documented as such. Apart from weed spread mitigation, the greatest advantage of this was that it provided a level of protection to contractors — weed contamination and spread was far less likely to be blamed on poor contractor weed hygiene practices if, for each job, satisfactory standards were met and appropriate records kept.

The executive determined that an accreditation system would provide the best means of achieving this objective. It envisaged clear standards for contractors to work to and a fair and straightforward means of auditing or checking that contractors understood and adhered consistently to these standards. The executive was further encouraged by other anticipated benefits of accreditation. For example, it would provide guidance to new agricultural contractors and allow those with greater experience to demonstrate their professionalism. Accreditation would contribute to risk minimisation and inspire greater confidence across the market in the supply of contractor services and agricultural products. It would also provide a framework against which individual clients and contractors could negotiate reasonable and effective actions for minimising weed contamination and spread.

Perhaps the most important observations about the conception of this initiative related to the strong element of self-motivation demonstrated by ACTI and its willingness from the outset to drive and take responsibility for outcomes. In addition to describing the development, form and implementation of this accreditation system, this paper argues that weed hygiene initiatives are far more likely to be successful if responsibility for them is accepted fully by the organisations for which they are designed, with government agencies playing supporting roles only.

Agricultural contractors bail up weeds Continued

System development

In March 2003, ACTI executive members, all of whom are volunteers, approached the Department of Primary Industries, Water and Environment (DPIWE), Tasmania, for assistance with progressing their idea for weed hygiene accreditation. The DPIWE was more than happy to contribute due to obvious synergies between the ACTI proposal and its own programmes and policies for weed hygiene and declared weed control. The development process proceeded as follows:

As part of the code of practice, agricultural contractors must attend a weed identification workshop and have suitable weed identification reference material.

• **Research and design:** Initial discussion revealed that the executive, while having a general notion about what it wanted to achieve, was less certain about system content and how to proceed. The DPIWE assisted by researching existing weed hygiene initiatives including the Environmentally Aware Contractors Programme developed in Victoria, other agricultural codes of practice or weed hygiene guidelines used in Tasmania, and Queensland guidelines for limiting weed seed spread. The DPIWE also investigated approaches to accreditation and consulted people familiar with quality assurance systems for rural industries. A broad list of considerations concerning accreditation system components and options was assembled. This formed the basis of subsequent discussions during which the executive determined the design specifications for the accreditation system. These (not in priority order) are:

- Minimal paperwork for members
- High credibility and value in the marketplace
- Low implementation and maintenance costs to members and ACTI
- A single level of accreditation
- Eligibility for accreditation confined to ACTI members
- Accreditation standards to be highly practicable and to reflect current best practice as determined by ACTI
- Accreditation standards to be clearly and simply specified within a code of practice
- Compliance with standards to be checked by external audit
- Alignment with DPIWE protocols or advice concerning weed surveillance, identification and management
- Alignment with the requirements of the Tasmanian Weed Management Act 1999
- Administration, promotion, monitoring and evaluation of the system to be undertaken and controlled by the ACTI executive

Linkages and alignment to formal accreditation structures (eg. National Conservation and Land Management course weed management competencies) were considered by the executive but deemed not essential at this stage.

• **Component development:** Using the design specifications, ACTI and the DPIWE drafted the three main components of the accreditation system:

1. The code of practice. This specifies the weed hygiene standards against which accreditation is determined. It has three parts: weed identification skills and weed management knowledge; selection and preparation of sites at which to conduct clean-down procedures; and hygiene procedures specific to particular categories of vehicle, equipment and implements used by agricultural contractors.
   Requirements for the first part of the code of practice specify attendance at a weed identification and management workshop and that the contractor obtain suitable weed identification reference material.
   Requirements for the second and third parts of the code are simply that contractors follow the protocols for clean-down site selection and cleaning down as described in the code as closely as possible.
2. The job sheet. Contractors are to use this to record weed information relevant to each job. If completed

Agricultural contractors bail up weeds Continued

properly, the job sheet provides a concise description of clean-down procedures undertaken, weeds encountered and any relevant management actions undertaken or negotiated with the client.

The job sheet also has provision for sign-off by both contractor and client to indicate agreement on the nature of existing weed problems and mutual satisfaction with weed management or hygiene procedures. On indicating an intention to participate in the accreditation system, the contractor is supplied with a booklet of job sheets. Carbon duplicates are provided to clients.

3. The compliance agreement. This is an instrument for recording audit results and formalising accreditation. A two-stage audit is proposed. The Initial Audit involves verifying that the contractor understands and satisfies the requirements of the code of practice. For example, job sheet booklets will be examined to see that weed information is being recorded adequately and consistently for each job, attendance of weed identification and management workshops will be checked and knowledge of clean down procedures relevant to the contractor will need to be verbally demonstrated.

   If the contractor passes the Initial Audit, a biennial site audit occurs thereafter to ensure accreditation requirements continue to be met. Quarantine Tasmania has agreed to conduct the compliance audits for this initiative and provide results and recommendations to the ACTI executive. The executive is responsible for arranging audit schedules and for issuing, denying or revoking accreditation based on audit results.

The code of practice specifies that contractors follow the protocols for clean-down site selection and cleaning down as closely as possible.

• **Membership consultation:** Once the draft components were completed, the executive arranged discussion with members of each of the three regional ACTI sub-branches. Executive members and DPIWE staff made joint presentations at meetings, explaining the proposed system and facilitating frank discussion. Members generally voiced support, however, some expressed concerns about extra paper work, potentially excessive time demands of clean-down procedures and questioned the proposal's rationale, in particular the nature of anticipated benefits to individuals and the sector in general. Members also expressed some hesitancy and concern about the compliance audit and sought assurance about the credentials of the auditors, especially in terms of knowledge of the contractors' operating environment, equipment and machinery. Despite these opinions and concerns, the over-riding view of members was supportive and they agreed to trial the system as presented.

Results

Its recent inception notwithstanding, a number of indicators suggest the ACTI weed hygiene accreditation system will be a valuable component for weed spread prevention in Tasmania although it does appear that some fine tuning is warranted.

Sixty contractors, approximately half the ACTI membership, have undertaken the weed workshop in the first year. Feedback was positive with most workshop participants reporting satisfaction with its scope, pitch and learning outcomes. The workshop format included presentations by DPIWE staff about weed identification and Tasmania's weed laws followed by group work focusing on resolution of weed management scenarios likely to be encountered by contractors.

Workshop participants were also given an opportunity to purchase the TOPCROP programme's *Weeds:*

Agricultural contractors bail up weeds Continued

The Ute Guide. The ACTI executive decided that this publication provided the best available identification resource in terms of range of relevant weeds described therein, quality of images, simplicity of text and general ease of use. Feedback from members thus far suggests the guides are being used regularly.

In addition, about 25 members have indicated a readiness to undergo an audit and have been completing job sheets in preparation. Once several contractors have progressed through the initial audit and reported the experience to their colleagues this number is expected to increase as lingering concerns and reticence about what it involves are dispelled.

A further benefit of the initiative is increased weed reporting to the DPIWE by ACTI members. This indicates the strengthening of co-operative relations and enhanced weed surveillance capacity in Tasmania. For example, over the 2003/2004 season ACTI members reported infestations of amsinckia *Amsinckia* spp., St John's wort *Hypericum perforatum* and Paterson's curse *Echium plantagineum*, all of which are relatively uncommon but serious or potentially serious weeds of Tasmanian agriculture. In addition many contractors reported common weeds that were unknown to them and not described in their *Ute Guides*, demonstrating they are actively improving their weed identification skills and willing to take time to seek advice.

The ACTI executive is also exploring possibilities for business and commercial advantages for accredited members. Tasmania Feedlot Pty Ltd, for example, demands all its feed grain and fodder inputs meet stringent quality requirements, including absence of contaminating seed. This particular business already demonstrates a willingness to offer price premiums for best practice that ensures its standards are met. For example, GrainCare programme participants who supply the feedlot have received price premiums. The ACTI executive envisages that clients who use accredited contractors may also be able to negotiate a small price premium. This in turn could lead to preferential use of accredited contractors by growers supplying the feedlot.

Feedback from participating members so far has also highlighted areas that require adjustment or rethinking. For example, obtaining job sheet sign-off by clients is proving problematic because clients are not necessarily present when the job occurs. Obtaining sign-off subsequently can represent an inconvenience most contractors are not willing to bear. Additionally, apart from several newspaper articles around the time the initiative was launched, it has not been heavily promoted which means many clients are largely unaware of its purpose and potential benefits. The ACTI executive is currently investigating opportunities for raising the profile of its accreditation system.

Discussion

This initiative is a fine example of a grass roots agricultural organisation taking its own weed management issues firmly in hand. While ongoing state agency technical support is clearly vital to the longer-term prospects of the accreditation system, its future success as a means of minimising weed spread is perhaps most closely aligned to the ability and commitment of the ACTI executive to maintain ownership. Executive efforts to date indicate an impressive capacity for administering and promoting the initiative and a real commitment to encouraging member participation.

South Island conservancy develops didymo decontamination plan

By Anna Paltridge
Weed Surveillance/Biosecurity Officer
Department of Conservation

The unique freshwater values of the Canterbury region are under threat from the unwanted organism *Didymosphenia geminata* (didymo). In response to this threat, staff from the Technical Support Unit of the Canterbury Conservancy of the Department of Conservation (DOC), developed a plan to help stop the spread of didymo.

In late 2005, the Canterbury Conservancy didymo management plan was developed to seek a consistent approach to didymo decontamination throughout the conservancy. Aimed primarily at DOC field staff, the plan also takes into account decontamination procedures for fire control operations, and provides advice to concessionaires — commercial operators who have contracts with DOC allowing them the right to conduct their business on public conservation land.

DOC Canterbury fire officer Brian Taylor briefs departmental fire fighters on procedure for decontaminating fire-fighting equipment and vehicles to prevent the spread of didymo. In front of Brian is safety equipment, bleach and tub in which to submerge hoses and waterway equipment to carry out decontamination.

Plan development

In view of its role and responsibilities for managing freshwater values, Canterbury Conservancy initiated the plan by carrying out an "options analysis". This determined the most appropriate level of response the conservancy should undertake to help prevent the spread of didymo.

The Canterbury Conservancy was then broken down into workable catchment areas based on the river environment classification data layer developed by the National Institute of Water and Atmospheric Research (NIWA) and consultation with local agencies. The catchment areas are designed to operate on two risk levels: Level 1: didymo has been confirmed in the catchment area; and Level 2: didymo has not been confirmed in the catchment area.

This information provided the platform to determine the plan's objectives and strategies that would assist in minimising the risk of DOC's operational work spreading didymo within the Canterbury Conservancy.

What does the plan cover?

The plan is focused on providing clear, detailed instructions on how to decontaminate equipment and vehicles that come into contact with waterways during general conservation work and during fire control operations. The decontamination methods referred to in the plan are based on the cleaning methods recommended by Biosecurity New Zealand (BNZ) for

Didymo decontamination plan developed Continued

freshwater activities. The plan also ensures that the correct didymo decontamination equipment should be available to all personnel carrying out field work where they are in contact with waterways. Equipment available includes portable didymo decontamination kits to help with on-site cleaning of equipment and portable spray bar wash systems to decontaminate vehicles.

Responsibility for didymo decontamination procedures at fire operations is also detailed in the plan. It was important that the plan considered the risk of didymo spread not only locally, but also at regional and national scales. In certain situations, fire control equipment used in Canterbury is required at fire operations in the North Island. Therefore it is extremely important to ensure that all fire control equipment is decontaminated before being sent, or received.

Portable didymo decontamination kits (different from those used for decontamination for general conservation work) have also been created to suit the different scales of fire emergencies.

The department recently commissioned a report from NIWA, entitled 'Trials to test the effectiveness of fire control additives for killing *Didymosphenia geminata*'. The trials involved testing three fire control additives at the lowest concentrations used in the field; a retardant (Firetrol), a suppressant (Class A foam) and hydro-blender capsules (soap). Results showed that effective decontamination of fire equipment using the above fire control additives were 2 minutes, 12 hours and 36 hours respectively. These recommendations apply to situations where water has been sourced from sites where didymo is not present in visible colonies.

The future

The plan is deliberately structured to be a "live" document so it can be updated if new didymo sites are identified, and with scientific information about best practice decontamination protocols.

Canterbury Conservancy will also be developing a didymo risk analysis to focus future efforts. The risk analysis will identify high risk sites for didymo spread and establishment. The analysis will also identify sites that are considered high value.

Murray Lane and Bruce Webster, DOC fire fighters, undertake training in decontamination of heli bucket.

Bruce Webster decontaminating the underside of a vehicle.

Dog enlisted in war on knapweed

Montana State University

There's a new enlistee in Montana's war against noxious weeds — a dog called Knapweed Nightmare.

With her black and brown coat, perky ears and lolling pink tongue, Nightmare looks like an ordinary family pet. But in fact she's a professionally trained work dog with a single-minded goal — sniffing out knapweed.

Scent detection dogs are used widely across the world, searching for everything from narcotics to land mines andto lost children. But Kim Goodwin, a rangeland noxious weed project specialist at Montana State University in Bozeman, thought Knapweed Nightmare might be the only dog in training to detect noxious weeds in rangelands and wildlands.

Noxious weeds displace native plants and animals and can permanently damage ecosystems. Spotted knapweed alone has a $46 million annual impact on Montana cattle producers. Weeds also affect fish and wildlife habitat, which in turn hurts the recreation and tourism industries.

Most of Montana was still weed-free, Goodwin said, but many areas were seriously threatened by rapid weed spread, which occured at a rate of up to 20% each year.

Nightmare was undergoing rigorous training with Hal Stiner of Rocky Mountain Command Dogs, in Belgrade. Once the dog completed the training and passed a series of ever-more-difficult performance tests, she would be on her way to Montana. There, she would be unleashed on 4ha parcels of rangeland, systematically searching until she located the odour of knapweed or had covered enough of the grid that her handlers could determine no knapweed was present.

The intention is for Nightmare to follow a knapweed odour to an actual plant, where she will dig or claw at the plant for about 10 seconds before continuing her search. A global positioning system (GPS) flash card on Nightmare's collar logs her location every three seconds, so if she pauses to dig, land managers will know to check the GPS co-ordinates of that spot for knapweed.

Goodwin said the trick to keeping areas free of weeds was to find small outbreaks before they turn into major problems, but that was tough: "The weak link in rapid response to new weeds is early detection," Goodwin said.

Finding low-density knapweed in a 40ha pasture was like finding a needle in a haystack, and it was particularly challenging to look for something that might not be there, said Goodwin. Human searchers moved slowly, got tired, hot and bored and quickly lost motivation.

Dogged pursuit of weeds: Knapweed Nightmare has been specially trained to sniff out knapweed in Montana, USA.

"When we use people to sample a low weed density area, they're too expensive and they don't find all of the weeds. For every plant we find, there may be nine others we don't find," said Goodwin. And, she said, more sophisticated technologies such as satellite imaging could not provide enough detail to spot a single plant.

"We also try to narrow our search efforts to likely or predictable sites, but weeds are moving erratically and establishing in unlikely areas. They're unpredictable," said Goodwin.

That's where the detection dog comes in. Goodwin knew that the USDA was using dogs to search for illegally imported plants and exotic animals at points of entry, so, she figured, why not give dogs a try on noxious weed detection in the field? "We're applying old technology to a new problem," she said.

Dog trained to find knapweek in Montana Continued

Goodwin said she was fortunate to find Hal Stiner's business close to MSU.

"I contacted Hal with this silly idea and he didn't laugh," said Goodwin. In fact, Stiner didn't even blink an eye at the idea. Stiner is an experienced dog trainer, with clients ranging from celebrities such as Kevin Bacon and Michael Douglas, to the Israeli police and the FBI. He has taught dogs to guard a seizure-prone child and to pick up credit card receipts for quadriplegics, and he has certainly not been daunted by the expectations for this canine.

Knapweed Nightmare is a Rocky Mountain shepherd, a breed Stiner specially developed over decades from Czech border patrol stock and red European wolf hybrid. His are the only ones in the world. "They're world-class professional work dogs," said Stiner. "Once they're trained, they're incredible."

It takes considerable time and effort to teach a dog to find a particular scent. Training began soon after birth, said Stiner, who singled out Knapweed Nightmare as a pup for her keen alert presence. "She was the first in the litter to wake up. Her ears were up, her eyes were open. She said, 'I'm the one'." For some time, Nightmare was destined to become a law enforcement detector dog, but when Goodwin approached Stiner with her plan, the dog's destiny changed course.

Her training began with scent imprinting. From the time a professional working dog is born, it never experiences "play" the way a family pet might. Instead, a dog in training plays with an object bathed in the scent it's learning to detect. Handlers praise the dog when it reacts positively to the scent.

So Knapweed Nightmare's "toy" was a piece of knapweed wrapped in a towel, and she began to associate the scent of the weed with pleasure and praise. Stiner hid the knapweed toy in progressively harder spots, and Nightmare sought it methodically by scent. As she became more skilled, the hiding places got tougher, and the searchable area got larger.

"We made the hiding harder and harder," said Stiner. "She got more devoted to her work through this process."

"She gets praised for what she's doing, and she loves her job," said Goodwin.

Postscript:

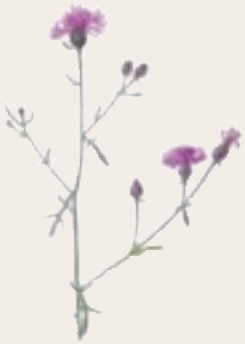
Knapweed Nightmare, along with two other dogs similarly trained, were put through their paces. In a detection field trial in Montana, the dogs were tested against three humans surveyors, who had strong knapweed survey experience, in 0.5ha fields, to find spotted knapweed *Centaurea biebersteinii* (= C.maculosa).

The trials resulted in the dogs doing well. The organisers, Kim Goodwin, James Jacobs, David Weaver, and Rick Engel, of the Land Resources and Environmental Sciences Department, Montana State University, in Bozeman, said the results indicated detector dogs were effective for detection of spotted knapweed incursions and more accurate and faster than humans at locating incipient stages of invasions.

Knapweed nightmare

Spotted knapweed *Centaurea maculosa* is a taprooted perennial, originally from central Europe and east to central Russia, Caucasia, and western Siberia, which was introduced into North America in the late 1800s as a contaminant in alfalfa and through discarded soil used as ship ballast. The first record of spotted knapweed was in Victoria, British Columbia, in 1883. It spread further in domestic alfalfa seeds and hay before it was recognized as a serious problem. From 20 counties in the Pacific Northwest by 1960, and 48 counties by 1980 it now infests 326 counties in the western United States, including every county in Washington, Idaho, Montana, and Wyoming.

Spotted knapweed invasion is associated with reductions in biodiversity, wildlife and livestock forage, and increased soil erosion. Elk use, as estimated by pellet groups/acre, was reduced by 98% on spotted knapweed-dominated range compared to native bunchgrass-dominated sites. It is also detrimental to water and soil resources with surface water runoff and stream sediment yield 56% and 192% higher, respectively, for spotted knapweed-dominated sites compared to native bunchgrass-dominated sites. Water infiltration rates were less on spotted knapweed sites than on bunchgrass sites.



Spotted knapweed
Centaurea maculosa
from: www.ecoreserves
.bc.ca/gallery04.html

Spotted knapweed lives up to nine years and is capable of producing from 5000 to 40,000 seeds per square metre per year. Wind transports seed locally, and long-distance transport occurs when seeds become attached to passing animals, or by rodents and birds. Spotted knapweed flowerheads also become attached to the undercarriages of vehicles, are transported long distances in mud, and commonly become attached to or drop into shoes. Seeds of spotted knapweed spread through rivers and along watercourses and are transported in crop seed and hay.

Spotted knapweed infests soils of all types but especially likes well-drained soils. It tends to grow in open and disturbed areas but will take over range sites no matter what their condition. Spotted knapweed can and will take over a range site unless control activities are undertaken by the landowner. Housing development sites are ideal for knapweed because of the disturbance, vehicle traffic, as is over- or under-grazed rangeland. Also these development sites tend to be on well-drained areas.

from www.mthomesandland.com/nwspotted.html

National Pest Plant Accord update

By Jessica Patchett,
Biosecurity New Zealand

Some of you may be wondering what is going on with the National Pest Plant Accord.

The new Accord list has been approved, and will be launched in September. The new list includes 49 new species and 4 new genera. Some species have been dropped from the list. Those that have been removed are still unwanted organisms; it's just that the NPPA is not the most appropriate mechanism to control these plants.

Firethorn (*Pyracantha angustifoli*), top, is on the list, Agapanthus (*Agapanthus orientalis*), bottom, is not.

Scientific Name	Common Name/s
Acmena smithii	monkey apple
Ailanthus altissima	tree of heaven
Akebia quinata	akebia
Alternanthera philoxeroides	alligator weed
Anredera cordifolia	madeira vine
Araujia sericifera	moth plant
Aristea ecklonii	aristea
Arundo donax	giant reed
Asparagus asparagoides	smilax
Asparagus densiflorus	bushy asparagus
Asparagus scandens	climbing asparagus
Berberis darwinii	Darwin's barberry
Bomarea caldasii	
Bomarea multiflora	bomarea
Bryonia cretica	white bryony
Calluna vulgaris (excluding double flowered cultivars)	heather
Cardiospermum grandiflorum	balloon vine
Cardiospermum halicacabum	balloon vine
Carpobrotus edulis and hybrids	iceplant
Celastrus orbiculatus	climbing spindleberry
Ceratophyllum demersum	hornwort
Cestrum parqui	green cestrum
Chrysanthemoides monilifera	boneseed
Clematis flammula	clematis
Clematis vitalba	old man's beard
Cobaea scandens	cathedral bells
Cortaderia jubata	purple pampas grass
Cortaderia selloana	pampas grass
Cotoneaster simonsii	khasia berry
Cotyledon orbiculata	African pig's ear
Cyathea cooperii	lacy tree fern, Australian tree fern
Dipogon lignosus	mile-a-minute
Drosera capensis	cape sundew
Eccremocarpus scaber	Chilean glory creeper

Scientific Name	Common Name/s
Egeria densa	egeria, oxygen weed
Ehrharta villosa	pyp grass
Eichhornia crassipes	water hyacinth
Eomecon chionantha	snow poppy
Equisetum spp. (all)	horsetail
Eragrostis curvula	African love grass
Erigeron karvinskianus	Mexican daisy
Euonymus japonicus	Japanese spindle tree
Ficus rubiginosa	Port Jackson fig
Fuchsia boliviana	
Galeobdolon luteum	aluminium plant

National Pest Plant Accord update Continued

Scientific Name	Common Name/s
Gunnera tinctoria	Chilean rhubarb
Gymnocoronis spilanthoides	Senegal tea
Hedychium flavescens	yellow ginger
Hedychium gardnerianum	Kahili ginger
Heracleum mantegazzianum	giant hogweed, wild rhubarb
Hieracium spp. (all)	hawkweed
Homalanthus populifolius	Queensland poplar, bleeding heart tree
Homeria collina	cape tulip
Houttuynia cordata	chameleon plant
Hydrilla verticillata	hydrilla
Hydrocleys nymphoides	water poppy
Hypericum androsaemum	tutsan, sweet amber
Ipomoea indica	blue morning glory
Iris pseudacorus	yellow flag
Lagarosiphon major	lagarosiphon, oxygen weed
Lantana camara	lantana
Ligustrum lucidum	tree privet
Lilium formosanum	Formosa lily; trumpet lily
Lonicera japonica	Japanese honeysuckle
Ludwigia peploides	primrose willow, water primrose
Lythrum salicaria	purple loosestrife
Macfadyena unguis-cati	cat's claw creeper
Menyanthes trifoliata	bogbean
Myoporum insulare (and hybrids)	Tasmanian ngaio
Myrica faya	fire tree, candle-berry myrtle
Myricaria germanica	false tamarisk
Myriophyllum aquaticum	parrot's feather
Nassella - ALL species	
Nephrolepis cordifolia	tuber ladder fern
Nuphar lutea	yellow water lily
Nymphaea mexicana	Mexican waterlily
Nymphoides geminata	marshwort
Nymphoides peltata	fringed water lily
Ochna serrulata	mickey mouse plant
Osmunda regalis	royal fern
Panicum maximum	guinea grass
Passiflora caerulea	blue passionflower
Passiflora tarminiana	Northern banana passionfruit
Passiflora tripartita	banana passionfruit

Scientific Name	Common Name/s
Pennisetum spp. (excluding *P. clandestinum* and *P. glaucum)*	pennisetum (excluding kikuyu grass and pearl millet)
Phragmites australis	phragmites
Pinus contorta	lodgepole pine
Pistia stratiotes	water lettuce
Pittosporum undulatum	Australian cheesewood
Plectranthus ciliatus	plectranthus, blue spur flower
Polygala myrtifolia (excluding *P. grandiflora)*	sweet pea shrub
Potamogeton perfoliatus	clasped pondweed
Prunus serotina	rum cherry
Pyracantha angustifolia	firethorn
Reynoutria japonica	asiatic knotweed
Reynoutria japonica x sachalinensis	
Reynoutria sachalinensis	giant knotweed
Rhamnus alaternus	evergreen buckthorn
Rhododendron ponticum	rhododendron, wild rhododendron
Sagittaria montevidensis	arrowhead, sagittaria
Sagittaria platyphylla	sagittaria, delta arrowhead
Sagittaria sagittifolia	arrowhead
Salix cinerea	grey willow, pussy willow
Salix fragilis	crack willow
Salvinia molesta	salvinia, Kariba weed
Schinus terebinthifolius	Christmas berry, Brazilian pepper tree
Schoenoplectus californicus	Californian bulrush
Selaginella kraussiana	selaginella, African club moss
Solanum marginatum	white-edged nightshade
Solanum mauritianum	woolly nightshade, tobacco weed
Tradescantia fluminensis	wandering jew
Tropaeolum speciosum	Chilean flame creeper
Tussilago farfara	coltsfoot
Typha latifolia	great reedmace
Utricularia gibba	bladderwort
Utricularia livida	
Vallisneria gigantea	eelgrass
Vallisneria spiralis	eelgrass
Zantedeschia 'Green Goddess'	
Zizania latifolia	Manchurian wild rice

Some plants are still under review and were to be considered at the next steering group meeting on July 18:

Scientific Name	Common Name/s
Ammophila arenaria	marram grass
Buddleja madagascariensis	Madagascar buddleja
Crassula multicava	pitted crassula
Jasminum humile	Italian jasmine, yellow jasmine

Scientific Name	Common Name/s
Melaleuca quinquenervia	melaleuca
Miscanthus nepalensis	Himalayan fairy grass
Utricularia spp (excluding the 3 native species).	bladderwort

National Pest Plant Accord update Continued

After the initial accord was developed in 2001, we noted there were some areas for improvement, the most important being compliance checking by regional councils. This problem is being addressed with a national training workshop for regional council staff and by developing a national compliance standard operating procedure. The national training programme will cover the standard operating procedure, the Biosecurity Act and plant identification. The standard operating procedure will enable regional agencies across the country to bring their programmes in line on a national front. This is being drafted at the moment, and will be in force by the public launch in September.

The Nursery and Garden Industry Association and Biosecurity New Zealand are also working together to jointly prepare guidelines for plant breeding.

There's a lot going on with the NPPA at the moment. So watch this space for more information!

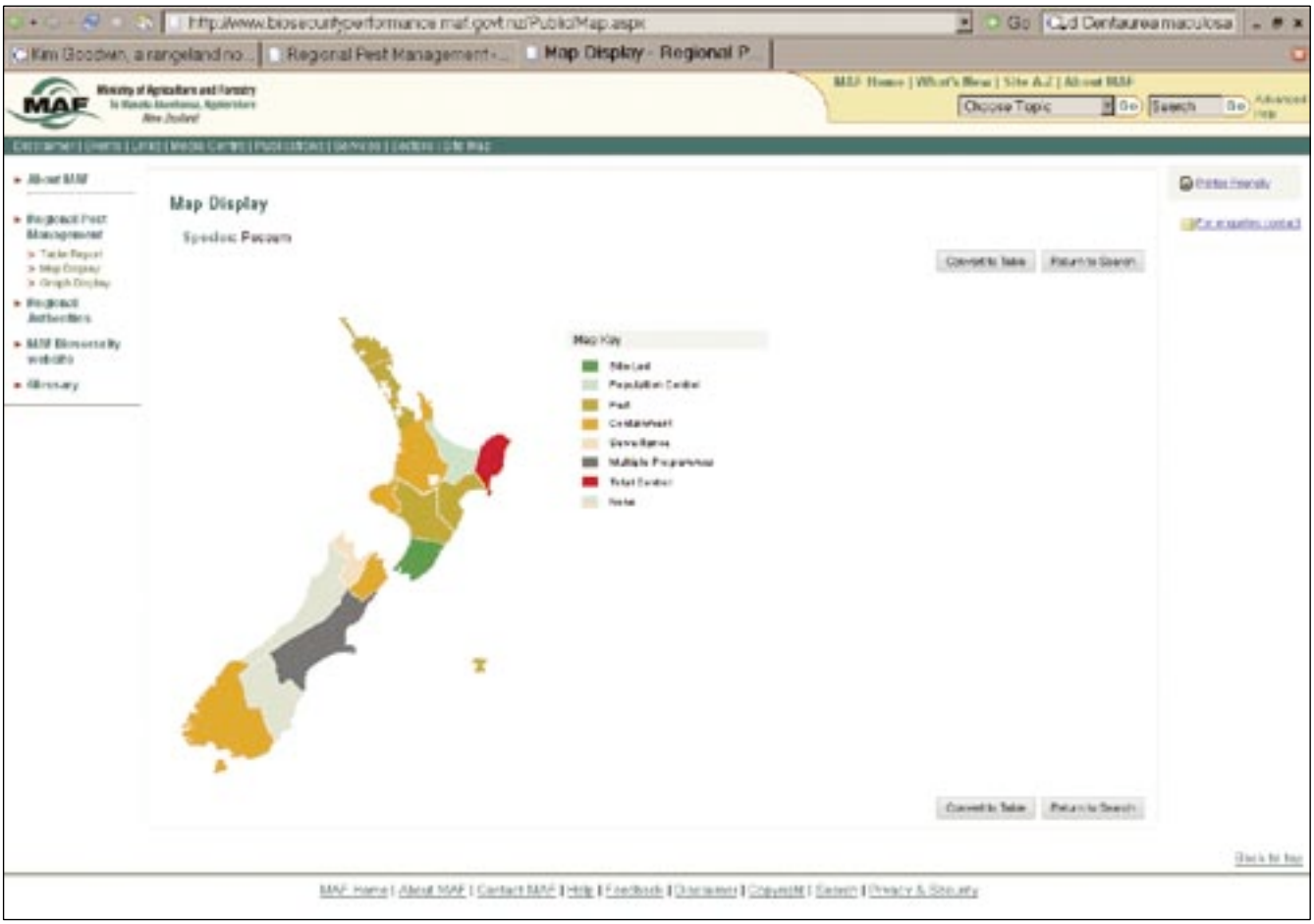
MAF launches Regional Pest Management website

The Ministry of Agriculture and Forestry's (MAF's) national biosecurity oversight role requires that it looks across all biosecurity-related activity, not just the directly MAF-related parts. MAF launched an interactive Regional Pest Management website on April 10, as a first step in collecting and presenting pest management activity and performance data. The information from the website is aimed at encouraging the decision makers in pest management to see the big picture and ask informed questions.

The site provides a nationwide picture of regional council pest management activity. It shows which pest species are managed, and how, in each region. Site visitors can search by species, region or by management programme and can view results as maps, tables or graphs.

The information is extracted from individual Regional Pest Management Strategies (RPMS) and will be updated as the regional authorities update their strategies.

To find out more, check out the site at www.biosecurityperformance.maf.govt.nz



Screen shot of MAF's new website, this one showing Regional Pest Management modes as they pertain to possum control.


4th New Zealand Biosecurity Summit
"Thinking Globally – Acting Locally"
7 – 8 November 2006 - Duxton Hotel, Wellington
Day 1
• Managing outbreaks
• eg How wouldl NZ deal with avian influenza?
• Health & the environment
• eg Will climate change increase the risk from dangerous mosquitoes?
• Incursion response
• eg What are we learning from responding to pests like didymo and sea squirt?
Day 2
• Borders & pathways
• eg What actually happens at the border?
• Balance in trade
• eg How does NZ balance its interests in trade and protection?
• Science directions in Biosecurity
• eg How can science contribute to biosecurity?
To register your interest and to receive further information please contact:
Deirdre.haines@maf.govt.nz or 04-8190364